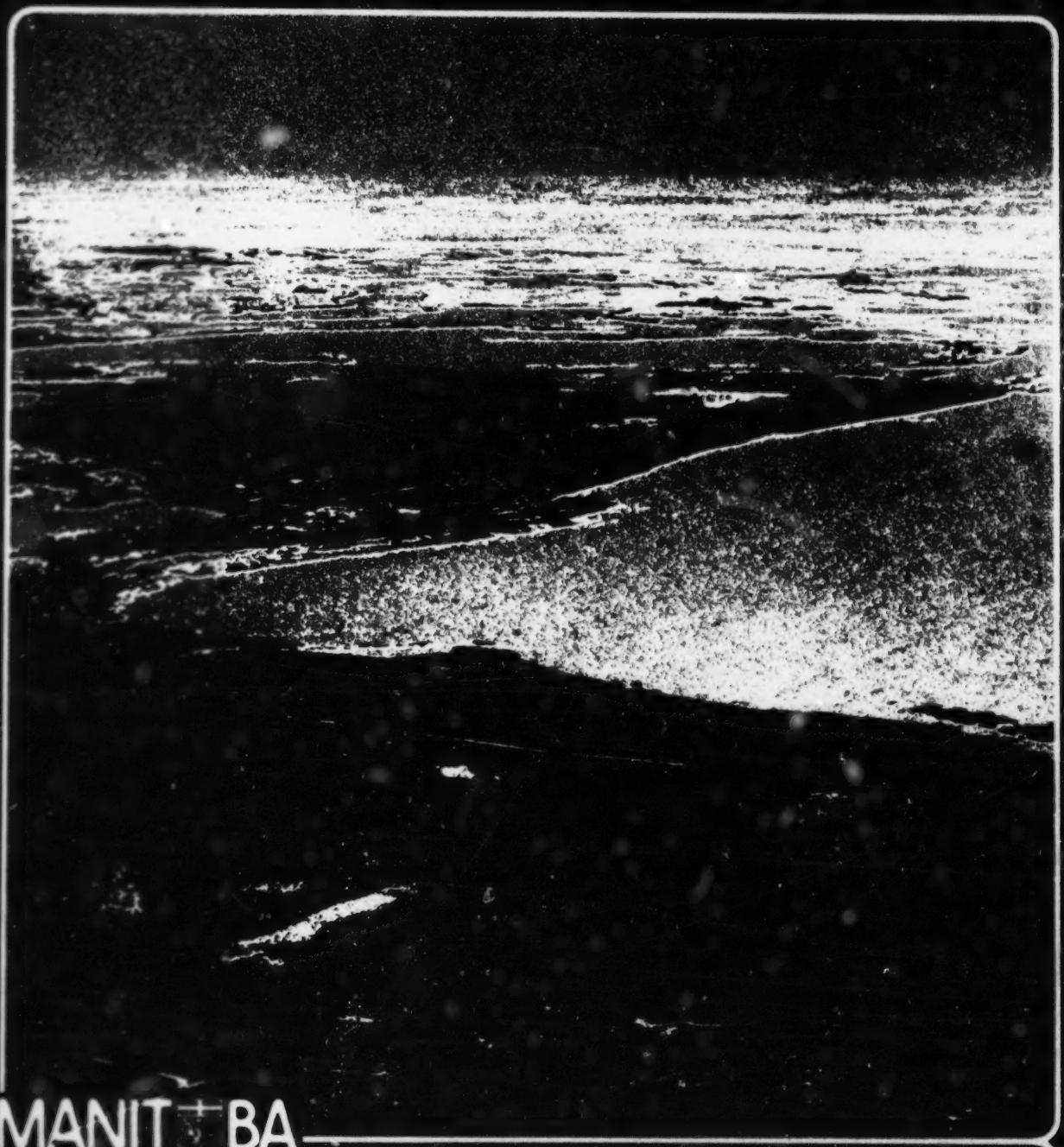

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Manitoba
Natural Resources

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prepared by the
Resource Allocation Working Group

PLANNING REPORT ON NATURAL RESOURCES

BOYNE PLANNING DISTRICT

Technical Report 84-3

PREFACE

Municipal Councils or established Planning District Boards are charged with the responsibility for municipal land use planning and development. This document has been prepared in response to a request from the local municipal planning authority for background material on the subject of natural resources for which the Department is responsible.

This document describes the natural resources in the study area, and identifies Provincial and Departmental concerns and objectives from a land use, development planning perspective. It offers for review, policies and guidelines to remedy, mitigate or anticipate issues and land use problems.

The bases for this report are the Provincial Land Use Policies dealing with natural resources and the policies of the Department of Natural Reosurces.

Municipal planning is a consultative process, and the information and policies discussed in this document are offered as advice to the local authority in their land planning deliberations. This is a consolidation of material forwarded previously.

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FISHERY RESOURCES

I. INTRODUCTION/PRESENT CONDITIONS

A. Stephenfield Reservoir

Stephenfield Reservoir is the only significant fishery in the Planning District (Map 1). It presently supports a northern pike and perch population; white suckers are also present.

Stephenfield Reservoir was constructed on the Boyne River in 1963. It has a surface area of approximately 154 hectares (380 acres), a maximum depth of about 8 meters (27 feet) and a storage volume of 4440 cubic decameters (3600 acre feet) at a full supply level of 295.7 meters (970 feet). Runoff is the major water source although spring activity is evident at most times on portions of Roseisle Creek and the Boyne River.

Between 1964 and 1966 brook and rainbow trout were stocked in Stephenfield Reservoir. Trout are very intolerant of low oxygen levels and in 1967 a winterkill occurred. Between 1967 and 1983, pike and/or adult perch were stocked on eleven occasions. Pike are the most resistant to winterkill of all the popular sport species. In some years perch have winterkilled while pike have survived. It is not known whether pike have ever winterkilled because a complete history of dissolved oxygen levels is not available and pike stocking has been quite repetitive. Local wildlife associations have requested walleye (pickerel) stocking and although periodic winterkill of this species is probable, a trial planting will likely be attempted in 1984. If spring activity is greater than expected, the establishment of sporadic walleye populations may be possible.

Characteristic of shallow prairie lakes in agricultural areas, Stephenfield Reservoir is rich with fertilizing materials that encourage the growth of aquatic algae and weeds. These fertilizing materials find their way into the watershed and reservoir through runoff from farm fields and cattle holding areas. Phosphorus and nitrogen are the major culprits. Phosphorus, for example, attaches to soil particles which arrive in the watershed through water and wind erosion or direct reservoir shoreline collapse.

Algae and weeds are a physical and aesthetic nuisance and will impact dissolved oxygen levels that can result in fish kills in summer or winter. For example, decomposing bottom sediments and organic materials use up oxygen and can result in the suffocation of fish. Furthermore, by-products of decomposition can impart taste and odours to water and increase water treatment costs.

Wave action is resulting in severe shoreline erosion on portions of Stephenfield Reservoir. Along with nutrient enrichment, these sediments are slowly filling in the reservoir. At the time of construction, for example, the maximum depth of water in the old creek channel at full supply level was close to 11 meters (35 feet). Electronic depth sounding in 1983 found a maximum depth of slightly more than 8 meters (27 feet) in the old creek channel. Shallow lakes encourage greater weed and algae production. Placement of suitable stabilizing materials, rock and old concrete slabs, for example, would reduce the severity of this problem.

Fish winterkill on Stephenfield Reservoir could be reduced or eliminated through costly management techniques. A winter aeration system, for example, would cost about $1,000 to install and over $30.00/month to operate. A cheaper option, though less certain of success, is snow clearing about 20 percent of the reservoir surface area in those years when average snow accumulations exceed about 15 cm (6 inches). Natural dissolved oxygen production can occur under the ice if sunlight is allowed to reach the clear ice surface.

The extent of the fish harvest by anglers at Stephenfield Reservoir has never been monitored intensively.

B. Other Waters

Three low level dams, two in Carman and the McEachern Dam, just east of Carman, provide angling opportunities that are most prevalent during open water periods. The smaller gradient control structures on the Norquay channel provide insufficient volume and flow to sustain perpetual fish populations. Fish species found in these waters are similar to those found in Stephenfield Reservoir. It is likely that the fish leave Stephenfield Reservoir through the low level discharge at the dam or flush over the spillway during peak run off periods.

Roseisle Creek and the Boyne River upstream of Stephenfield Reservoir support pike and suckers during the spring spawning run. Although most of the adult spawners return to the reservoir immediately after spawning, these waters are important rearing areas for the newly hatched fry and fingerlings.

Spring activity and habitat along Roseisle Creek and the Boyne River may be sufficient to support a limited trout fishery. This requires further investigation.

II. CONCERNS/OBJECTIVES

Stephenfield Reservoir is the major significant fishery in the Planning District. Since fish demand is high and alternate opportunities are limited this reservoir and its watershed should be protected from abuses. Specifically, the fisheries concerns/objectives are:

1. Fish are a renewable resource and it is incumbent upon all governments to ensure the provision of a suitable habitat that will assure continuing fish stocks for the long term benefit of all Manitobans.

2. To ensure the survival or improvement of fish stocks, subject to the effects of natural environmental changes and approved man-made environmental changes, specifically to protect existing fisheries habitats, spawning sites and nursery areas in the watershed above the Norquay Channel. The Boyne River, Roseisle Creek and various tributaries can support fish runs and serve as spawning and rearing areas for pike, perch and suckers.

3. To maintain, enhance and diversify angling opportunities to Manitobans to meet existing and future demands.

4. To promote communication and cooperation between private landowners, industry, the public, local government and the Department of Natural Resources so as to achieve high standards of conservation practices.

III. POLICIES/GUIDELINES

Although fisheries habitats are being stressed and have been reduced, what remains can be retained and enhanced by judicious use of land and water in the Planning District. In order to achieve the fisheries objectives and to mitigate and alleviate concerns, the following apply:

1. Fisheries habitat; spawning sites and nursery areas shall be protected.

   a) Ditching and stream rechannelization should not be permitted in direct tributaries to the watershed upstream of Stephenfield Reservoir. The construction of dykes as opposed to channel deepening and straightening shall be encouraged. Measures to limit nutrient and sediment inflow shall be encouraged.

   b) Land clearing, cultivation and development to the edge of significant waterways shall be prohibited. Where possible a buffer strip of natural vegetation 91.5 meters (300 feet) wide from the ordinary high water mark shall be maintained along the watershed. Development or maintenance of appropriate vegetative cover along waterways to prevent erosion, siltation and reduce runoff shall be encouraged.

2. Shorelines subject to intensive use and development should be protected from excessive erosion and organic loading. Restabilization of collapsing shorelines at Stephenfield Reservoir are encouraged. Activities that discharge pollutants shall be restricted in their location and it may be required that precautionary safeguards that mitigate the pollutant be incorporated into the development activity.

3. The right of public access to fishing waters shall be maintained in accordance with such Acts, Regulations and contracts that are in place from time to time.

IV. IMPLEMENTATION

The objectives and policies with respect to fisheries shall be implemented as follows:

1. By assistance and advice on conservation practices by the staff of the Department of Natural Resources.

2. By public and private cooperation through management and development agreements.

3. By the Council through the judicious use of restrictive zoning bylaws, subdivision control procedures and the issuance of development permits.

FORESTRY RESOURCES

I. PRESENT CONDITIONS/INTRODUCTION

This Planning District is within the Aspen Parkland Section, Forest Management Unit 02 as defined in the Manitoba forest inventory classification system, 1980. Forest inventory on the area was completed in 1982. Both Crown land and private land forest inventory information is available and may be of benefit to land owners in the area where forested land is present.

As the area is in close proximity to population centres land owners with forested land on their holdings might consider growing trees as a crop, for example fuelwood. This is particularly true for land unsuitable for other agricultural purposes but still capable of supporting tree growth.

While trees and forests have value as a renewable cash crop their presence is valuable in other ways. These include control of precipitation runoff and retarding snow melt to lessen flood risk; erosion control both water and wind; a habitat for wildlife; and, recreation opportunities for people. Furthermore, forest harvesting operations can be done in a manner that will enhance all forest values; however, it is essential that fire be kept out.

While the Department, and specifically, the Forestry Branch, do not at present provide a forest extension service, regional forestry staff will be pleased to provide advice on forestry information to the extent that their other duties permit doing so.

Carman is a demonstration community for Dutch Elm Disease (D.E.D.) control. Elm tree removal and disposal is controlled under the D.E.D. Act and Regulations.

OUTDOOR RECREATION

I. PRESENT CONDITIONS/INTRODUCTION

The Stephenfield Reservoir is an important outdoor recreation opportunity in the Planning District. The highest potential is for water-oriented activities and camping. The reservoir provides an interesting break to the generally flat landscape of the agricultural land.

The Parks Branch operates a campground, Stephenfield Provincial Recreation Park, which offers about 140 unserviced campsites and day-use area. There are presently no plans to expand the park (Map 1).

II. CONCERNS/OBJECTIVES

The outdoor recreation opportunities provided by the Stephenfield Reservoir should be identified and protected.

Adequate buffering to protect the atmosphere of the Provincial Park is important.

III. POLICIES/GUIDELINES

1. The Stephenfield Reservoir should be defined and given proper recognition as conservation lands. These lands shall be for the conservation of resources and enjoyment of amenities offered to residents and non-residents.

2. Areas within the Planning District, such as the Stephenfield Provincial Recreation Park and which are deemed to be important as environmental, natural resources, historic or recreational assets shall be identified and afforded protection from incompatible uses.

3. Existing public access to outdoor recreation opportunities must be maintained.

4. Existing vegetation along the Boyne River and in the vicinity of the reservoir shall be maintained.

IV. IMPLEMENTATION

These policies can be achieved by means of appropriate zoning by-laws.

WATER RESOURCES: GROUNDWATER

I. PRESENT CONDITIONS/INTRODUCTION

The availability of groundwater in the District varies over a wide range; in some parts of it groundwater is readily available and the quality is excellent and in extensive areas potable aquifers are non-existent. In most of the District the availability is somewhere between these extremes.

Aquifers in the District are formed by sand beds at or near ground surface, lenses of sand and gravel below a thick clay layer that underlies almost the whole District, and bedrock formations, mainly limestone and dolostone (Figure 1).

The shallow sand aquifers are common in the central and western parts of the District (Map 2). The yield of the sand aquifers ranges from less than 0.1 L/s (1 I.G.P.M.) and at some locations barely adquate for household requirements to more than 1.0 L/s (13 I.G.P.M.), which is abundant for normal farm requirements. It is possible that at some locations a moderate municipal or industrial supply can be developed. Water quality in the shallow sand aquifers ranges from fair to excellent.

The sand and gravel aquifers occur in the central part of the District. In general, the yield of these aquifers ranges from 0.4 L/s to 2 L/s (5-25 I.G.P.M.) and often it is higher than the yield of the shallow sand aquifers that exist in the same area. The sand and gravel aquifers are not subject to groundwater drought as are some of the marginal shallow sand aquifers. Water quality in the sand and gravel aquifers ranges from fair to unusable.

Water in the bedrock is highly mineralized and not suitable for household use or for livestock. In the eastern part of the District (most of Rge. 3W, parts of Rge. 4W) the highly mineralized water has intruded all the sand and gravel aquifers and, consequently fresh groundwater is not available.

Because the shallow sand aquifers are only a few metres below the surface all of the shallow aquifer areas are considered to be groundwater pollution hazard areas (Map 3).

II. CONCERNS/OBJECTIVES

The groundwater supply in the District varies considerably from place to place. In the central and western parts of the District it is, in general, adequate for present requirements and for moderate new development. In extensive areas in the eastern part of the District potable groundwater is not available. Hence the overall concern is groundwater resource management and protection to assure adequate supply for existing users and for potential development. In extensive areas in the central and western parts of the District the surface deposits contain shallow aquifers that are subject to pollution. Consequently these areas are considered to be groundwater pollution hazard areas. Groundwater pollution prevention is the main concern in the District.

Objectives

1. To manage the aquifers in a manner that would not deprive existing users of their water supply and would not have a detrimental effect on groundwater potential in the District.

2. To maintain groundwater withdrawal within acceptable limits.

3. To prevent aquifer pollution.

III. POLICIES/GUIDELINES

1. Intensive development (subdivisions) and high capacity wells should be permitted only in areas where they will not cause a reduction in water supply for existing users.

2. Groundwater consumption should not exceed the total sustained yield of an aquifer.

3. Wells should be installed in a manner that would not have a detrimental effect on aquifers.

4. Activities that may cause pollution under normal operating conditions or by accident should not be permitted in groundwater pollution hazard areas unless it can be proven by adequate field investigation that the proposed activities will not cause pollution of existing or potential groundwater supply in the area.

IV. IMPLEMENTATION

1. Aquifer management is implemented by the Water Resources Branch of the Manitoba Department of Natural Resources under the provisions of the Ground Water and Water Well Act and the Water Rights Act.

2. Well construction in respect to prevention of detrimental effect on aquifers is regulated by the Water Resources Branch of the Manitoba Department of Natural Resources under the provisions of the regulations made under the Ground Water and Water Well Act.

3. Aquifer pollution prevention is implemented by the Environmental Management Division of the Department of Environment and Workplace Safety and Health.

WATER RESOURCES: SURFACE WATER

I. PRESENT CONDITIONS/INTRODUCTION

The Boyne Planning District is located where the Manitoba Escarpment descends into the Red River Valley. The topography falls in an easterly direction, with land slopes averaging about 1.1 meters per kilometre (six feet per mile) east of Carman and about 2.8 meters per kilometre (15 feet per mile) between Carman and Roseisle. West of Roseisle the slopes rise rapidly up the face of the Escarpment and average over 19 metres per kilometre (100 feet per mile).

The Boyne River is the dominant surface water feature in the District. With headwaters in the escarpment the Boyne flows more or less through the middle of the District, draining into the Morris River via the Norquay Channel. With the exceptions of small areas to the north and south, in the Upper Morris and Tobacco Creek Watersheds respectively, the District is drained by the Boyne-Norquay system (Map 4).

By virtue of its location at the base of the Escarpment, the Boyne Planning District is vulnerable to flooding and, to some extent, erosion and bank instability problems. Due to the steep slopes in the Escarpment, runoff is rapid and unimpeded by snow blockage. The valley sides contain the flood waters until they reach the subescarpmental areas where the milder slopes, wider floodplains and less pronounced valleys can lead to widespread flooding. Serious floods have occurred on the Boyne River in 1880, 1894, 1902, 1923, 1970, 1974 and 1979.

Although flooding occurs at locations throughout the District it is most serious along the Boyne River and damages are greatest on the highly developed lands in the Town of Carman and the surrounding area. As a result of the flooding concerns, a flood risk study for Carman was conducted under the Canada-Manitoba Flood Damage Reduction Program. The flood risk area is being mapped and divided into two zones, the floodway, where no development should take place, and the floodway fringe where development may be permitted, with adequate flood protection. Designation of the flood risk area will take place on June 13, 1984 and the maps will be available at that time.

Jurisdiction over waterways within the District is divided between the Municipality and the Province, with those designated "Provincial Waterways" being a provincial responsibility. The Province also operates the Stephenfield Dam and Reservoir on the Boyne River.

At the Stephenfield Dam, a designated reservoir area has been established to protect the primary use of the reservoir, that being water supply. The reservoir area is under the Water Resources Administration Act and the only permitted uses are agricultural and water control unless a planning scheme, approved by the Water Resources Branch, is passed for the area.

If the Planning District intends to zone lands within the reservoir area for intensive land uses such as cottaging or residential, such proposals should be submitted to the Water Resources Branch so that the necessary studies can be carried out to ensure that the reservoir is capable of accommodating those uses without endangering the primary function.

II. CONCERNS/OBJECTIVES

Development or unsuitable agricultural practices on hazard lands can lead to acceleration of environmental damage, interference with natural processes, public expenditures for remedial works or assistance, waste of resources and personal loss and hardship. In order to mitigate against these concerns the following objectives are established.

1. To minimize personal hardship and inconvenience, adverse affects on public health and loss of life;

2. To minimize property damage and public expenditures for relief or protection in areas subject to flooding, water erosion, wind erosion, bank instability, landslide or subsidence;

3. To restrict activities which would accelerate or promote damages arising from causes such as erosion or bank instability;

4. To acquire access to all waterways in order to carry out public work projects when required;

5. To maintain the natural capacity of the streams to convey flood flows;

6. To encourage the preservation of natural vegetation along the banks of waterways.

III. POLICIES/GUIDELINES

1. Development in areas which, in the opinion of the Board or Council, may be subject to physical hazards shall generally be limited to agricultural or open space uses. Under special economic or social circumstances the Board or Council may permit more intensive development if the hazard is eliminated or protected against. Development in hazardous areas shall be subject to the following requirements:

   a) If the land is subject to flooding all permanent structures must be located on land which has been raised by fill to an elevation at least 0.6 metres above the 100 year flood level.

   b) Land which may be eroded away within a period of 50 years must be excluded from development unless it is demonstrated, to the satisfaction of the Board or Council, that the erosion process has been halted.

   c) Development shall not be permitted on lands subject to bank instability, landslides or subsidence.

   d) All structures and services shall be protected against damage and shall be functional under hazard conditions.

2. Development in the area mapped under the Canada-Manitoba Flood Damage Reduction Program shall be subject to the following requirements:

   a) No new buildings or structures shall be permitted within the designated floodway area.

   b) New buildings or structures within the designated floodway fringe area shall be floodproofed in accordance with Policy 1.

3. Notwithstanding (1) development will not be permitted if, as a result of the development;

   a) There is an added risk to life or safety, or

   b) Water flow, flow velocities or stages are adversely altered, obstructed or increased.

4. Activities such as dumping, excavation, clearing, cultivation, or excessive grazing which would accelerate or promote dangerous erosion or bank instability will be prohibited.

5. In areas where the specific hazard has not been defined, permanent structures shall be set back from all waterways a distance of at least 10 times the height of the bank above channel grade or 60 metres whichever is greater unless an engineering investigation shows that these limits may be reduced.

IV. IMPLEMENTATION

The Policies shall be implemented by means of, variously, zoning by-laws, conditions of subdivision approval, the issuance of development permits and building permits, development agreements and such programs as are determined from time to time by the Board or Councils to be necessary and not in conflict with the provisions of any part of the Plan.

WILDLIFE RESOURCES

I. PRESENT CONDITIONS/INTRODUCTION

The majority of lands in the R.M. of Dufferin are located in the Manitoba lowlands physiographic region. However the western 25 percent of the municipality is characterized by the Pembina Hills escarpment with an undulating topography. Soils of the lowlands are fertile lacustrines while those of the adjacent escarpment are mixes of clays, lacustrines, sand and gravel. Wooded ravines and aspen-grassland associations characterize the western portion of the Planning District.

Much of the area has been severely impacted by modern agricultural practices which have resulted in a monocultural environment. The diversity and abundance of wildlife have been reduced due to these farming practices.

All remaining wooded areas and grasslands within the R.M. are important to wildlife. They support white-tailed deer, numerous upland game bird species, furbearers, and non-game species. The few remaining wetlands, primarily streams and creeks provide limited habitat for waterfowl and aquatic furbearers (Map 1).

Current population figures are not available for any species within the Planning District. Statements to be made relative to abundance are based on general field reports.

White-tailed Deer

The wooded ravines and slopes of the escarpment as well as the remaining wooded cover at the escarpment's base still provide quality habitat for a limited number of deer. The ravines and denser wooded blocks are critical as winter habitat for deer. The areas where, if still wooded, the best habitat is located are in the western part of the District.

Waterfowl

There is very little suitable waterfowl habitat remaining in the Planning District. These sites are generally associated with the Boyne River and its tributaries. However water is not the only major component of waterfowl habitat. Grass and shrub cover are equally important for nesting cover. Without these undisturbed sites for nesting, the water is of little value.

Furbearers

The most important furbearers are the red fox, raccoon and coyote. Muskrat, beaver and mink are also present but in low densities along the area's watercourses. The R.M. is in the "open trapping" area which permits anyone in possession of a valid trapping licence to operate within the trapping seasons and providing the person has landowner permission.

Upland Game

Sharp-tailed grouse, ruffed grouse and grey partridge are common. The grey or hungarian partridge are associated with agricultural lands and require grassland or shelterbelts in close proximity to cereal stubble. They are the most abundant upland birds at present. Sharp-tailed grouse are mainly found in the western part of the Planning District. Ruffed grouse are associated with more mature woodlands.

II. CONCERNS/OBJECTIVES

Concerns

The primary problem facing many species is habitat loss, particularly on private lands in the escarpment area. Illegal harvest, the use of pesticides and herbicides, crop depredation and land use of present habitat are wildlife problems within the municipality.

Policy Directives of the Department of Natural Resources to the Widlife Branch provide guidance in planning for the Province's Wildlife Resources. The following is the present policy of the Department respecting wildlife.

1. It is incumbent upon the government, as the resource steward to ensure that appropriate use is made of wildlife and that the resource is passed on to future Manitobans in at least as vigourous a state as it was received by our generation.

2. The overriding consideration is to ensure that wildlife populations are protected from severe damage, and that, subject to the effects of natural environmental changes, and of approved man-made environmental changes, viable populations are maintained. Numbers are not to be permitted to decline to levels where recovery is doubtful.

Given these considerations, the following wildlife concerns and issues are apparent for the Boyne Planning District.

White-tailed Deer

The primary concern related to the maintenance of local deer populations is the indiscriminate clearing of wooded lands for land use practices which are incompatible to the potential of the land base (e.g., the clearing of erosion-prone lands). Areas designated as deer wintering areas should be maintained in their natural state as they are critical to this species during the winter months. Large-scale clearing of wooded lands throughout the remaining deer habitat will only lead to a negative impact upon this resource. However all clearing within the municipality need not have significant impact upon carrying capacity and indeed, in some cases may serve to enhance mature timber areas for white-tailed deer if it occurs on a limited basis.

Intensive grazing of winter deer browse by cattle in fall will serverly impact the deer carrying capacity of an area. Cattle grazing should be deterred within the designated wintering areas that are located on fragile soil bases.

Waterfowl

Concurrent to protecting the water component of waterfowl habitat and equally as important, is the provision of adequate cover for nesting ducks. Areas of undisturbed grass/legume mixtures equal in size and adjacent to the wetland acreage are considered to be ideal for nesting purposes. Several species (e.g., mallard, pintail) nest very early in the year when the only cover available is old growth. The mallard in particular appears to be one species of duck whose population levels are declining and this may be partially attributed to poor quality nesting cover. It is very important to maintain quality nesting cover within the Municipality.

The present economic difficulties facing many farmers are recognized and it is hoped that mechanisms compatible with agricultural interests can be utilized and jointly developed. The types of agricultural use being made of uplands near wetlands can often be modified to substantially decrease their impact upon nesting ducks with little decrease in agricultural production. Burning on a yearly basis is definitely not compatible with this goal. If burning is to occur then it is recommended that only a portion of the nesting cover be burned in any particular year so that some residual cover will be available for the forthcoming year. Fall burns are recommended because spring burning often destroys nests of many species. Within cultivated lands, maintenance of some upland cover near wetlands, rivers and creeks is necessary. In those areas where cultivation has occurred to the limit of wetland basins, the use of artificial nesting structures may be feasible and may be provided through wildlife interest groups. Haying in the vicinity of basins, rivers or streams should be delayed as long as possible to allow ducks the opportunity to hatch their nest. It is generally believed that it is safe to hay after July 15th.

Furbearers

Beaver can cause damage to property through their dam building and tree-cutting activities. Foxes, coyotes and raccoons cause problems with domestic animals periodically, but not nearly enough to offset the significant return in recent years from their high priced furs and the positive benefits received by their role in the control of rodents.

Upland Game

Wooded cover is essential to the maintenance of sharp-tailed grouse and ruffed grouse populations. Ruffed grouse are restricted to wooded cover with older stands of particular importance during the winter months. Clearing large tracts of land would effectively eradicate this species.

Extremely important to the maintenance of Hungarian partridge is the maintenance of grassy nesting cover. Windbreaks should be maintained not only for their role in limiting soil erosion, but also because they furnish quality nesting and resting cover. The addition of windbreaks for the above purposes should continue to be actively encouraged. Drainage ditches, road allowances and haylands should be burned as little as possible and ideally not be hayed prior to July 15th to protect nesting females.

Non-Game Species

Passerine (song) birds, as well as other birds have significant impacts upon insects which cause damage to agricultural crops. One need only observe the gulls often seen foraging behind farmers cultivating their fields. Habitat, both wooded and grassland, should be maintained for the many non-game species.

Some non-game species have become pests, with blackbirds in particular causing damage to certain crops. Programs of control and compensation mutually acceptable to both landowner and taxpayer must be implemented. It is important to recognize that more and more people are becoming interested in non-game species and particularly birds. Some studies have indicated that the average person interested in non-game spends more money related to their hobby then the average hunter does. Significant economic benefits may be available in the service of this group of people.

Objectives

The following objectives should serve as a guide in land use planning for areas affecting wildlife. These objectives are:

1. To maintain population levels of each species at present levels through the maintenance of proper habitat conditions for all species. No species presently found within the Municipality should be reduced to the point where the species may be exterminated.

2. To encourage wildlife habitat maintenance on private lands.

3. To encourage education regarding the value of wildlife and wildlife habitat.

4. To minimize depredation within the Municipality and to retain marshes for the production of furbearers in particular.

5. To promote communication and cooperation between private landowners, all groups and individuals interested in use of the resource, local government and the Department of Natural Resources so as to achieve high standards of conservation practices.

III. POLICIES/GUIDELINES

In order to achieve the stated objectives, the following policies shall be applied in order to promote the maintenance and proper use of wildlife resources of the Municipality.

1. Significant deer wintering areas should be afforded protection as follows:

   a) Erosion prone lands shall be left in a natural state. Use of these areas shall be such that no substantial harm is done to wintering deer habitat.

   b) Agricultural lot sizes of between 80 to 160 acres and agro-residential family splits are considered appropriate.

   c) Farming practices which minimize soil erosion shall be encouraged.

   d) A minimum of 30% of each quarter section should be maintained in natural woody vegetation, being as interspersed as possible with cultivated land.

2. Drainage of remaining wetlands shall not be permitted. Grazing in the immediate vicinity of rivers, streams and creeks shall be discouraged. Indiscriminate burning of nesting cover shall be discouraged. Methods of land use which minimize agricultural impact upon nesting birds shall be encouraged.

3. Windbreaks, hedgerows, drainage ditches, road allowances, small blocks of wooded cover, rivers and streams are the primary habitat left in areas where there is intensive cultivation. These areas shall be maintained for the production of wildlife.

4. Landowners subject to crop depredation or having other wildlife related complaints shall be encouraged to seek advice and assistance from the Department of Natural Resources in an effort to mitigate damage and costs. The best possible plan to alleviate waterfowl depredation shall be given full support.

5. Areas important to threatened, rare or endangered wildlife species shall be recognized and protected.

IV. IMPLEMENTATION

These objectives and policies should be implemented as follows:

1. Consultation on conservation practices with staff of the Department of Natural Resources.

2. Public and private cooperation through management and development agreements.

3. Adoption of zoning by-laws.

4. Through subdivision control procedures and the issuance of development permits where appropriate.

5. Consultation with the Department of Natural Resources with regards to the needs and problems as perceived by the people.

CROWN LANDS

INTRODUCTION

This section describes the Crown lands in the Planning District, providing an inventory of Crown lands and present commitments. Additionally, this section will discuss the authority for Crown lands, the legal aspects thereof and the planning and administration of Crown land.

DEFINITION

Crown land, for the purposes of this section, is defined as all land under Order-in-Council designated as; Provincial Park, Provincial Forest, Ecological Reserve, Wildlife Management Area, and Community Pasture, plus all other land administered by the Department of Natural Resources and Department of Agriculture under 'The Crown Lands Act'. In addition, all water bodies, streams, rivers, and creeks are considered Crown lands except where original title has confirmed the lake bed or stream bed to an individual.

ACTS AFFECTING CROWN LANDS

There are a variety of acts which affect the administration and management of Crown lands. For the purposes here, the principal acts which govern use and management of these lands are:

1. The Crown Lands Act,
2. The Fisheries Act,
3. The Forest Act,
4. The Provincial Park Lands Act,
5. The Water Power Act,
6. The Rivers and Streams Act,
7. The Wildlife Act, and
8. The Water Resources Administration Act.

MANAGEMENT AND ADMINISTRATION OF CROWN LAND

The actual management and administration of Crown land is split between two Departments of Government, the Departments of Natural Resources and Agriculture. The Agricultural Crown Lands Branch has been assigned the functions and related administration pertaining to the issuance of agricultural leases and permits of occupation or use of those Crown lands which are designated by the Minister of Natural Resources as:

1. primarily agricultural lands, and

2. designated as multiple use lands which may only be used for agricultural purposes on an interim or secondary use basis, subject to specific conditions and covenants required by other resource users.

The principle responsibility for Crown land remains with the Department of Natural Resources, which administers The Crown Lands Act excepting those specific sections under the responsibility of the Minister of Agriculture.

The Minister of Natural Resources is responsible for administration, direction and control of the surveys of Crown lands. Survey monuments defining Township, Section and Quarter Section corners have been established throughout the Planning District.

The protection of the township survey fabric, the primary function of which is to support the transferring of rights in land via The Real Property Act or The Crown Lands Act, is essential to efficient and effective land administration. No system, purporting to give evidence of the ownership of land is complete if one cannot determine what land is being conveyed or where its boundaries are located. Boundaries, once defined, are a matter of law and the survey monument is the vital link between the ground and the administrative record.

CROWN LAND CLASSIFICATION AND PLANNING

Crown land is exempt from The Planning Act and is under the jurisdiction of the Manitoba Government as governed by the various acts of the Legislature mentioned above.

The classifying to use of Crown land in the southern portion of the Province is the responsibility of the Crown Land Classification Committee, (CLCC). This is an Interdepartmental Committee with representation from the Departments of Agriculture, Natural Resources and Municipal Affairs. The CLCC reports to and receives their direction from the Provincial Land Use Committee of Cabinet.

In carrying out this responsibility, the CLCC has established Bloc Planning Committees (BPC's). These BPC's have regional representatives from the Departments of Agriculture, Natural Resources and Municipal Affairs. The BPC's provide field recommendations, in effect, providing to the CLCC preliminary land use plans for their consideration of Crown lands. They are not, however, final plans. The Crown Land Classification Committee requires that all such plans must be reviewed and commented on by Local Councils and/or Planning District Boards. It is only after such review and appropriate adjustment if necessary, that a final Crown land plan is prepared.

INVENTORY

In the Boyne Planning Distirct there are approximately 173 hectares of Crown land, (Map 1, Table 1), representing approximately 0.2 percent of the land base in the District.

PRESENT COMMITMENTS

In the Boyne Planning District, the major commitments of Crown land are to Provincial Park under Order-in-Council and to agricultural use via leases and permits.

However, it must be noted that the commitment of Crown land is a dynamic process with leases and permits being issued, expiring, being renewed, cancelled and dropped. This occurrence is a day-to-day administrative process being actioned by various Departments of Government.

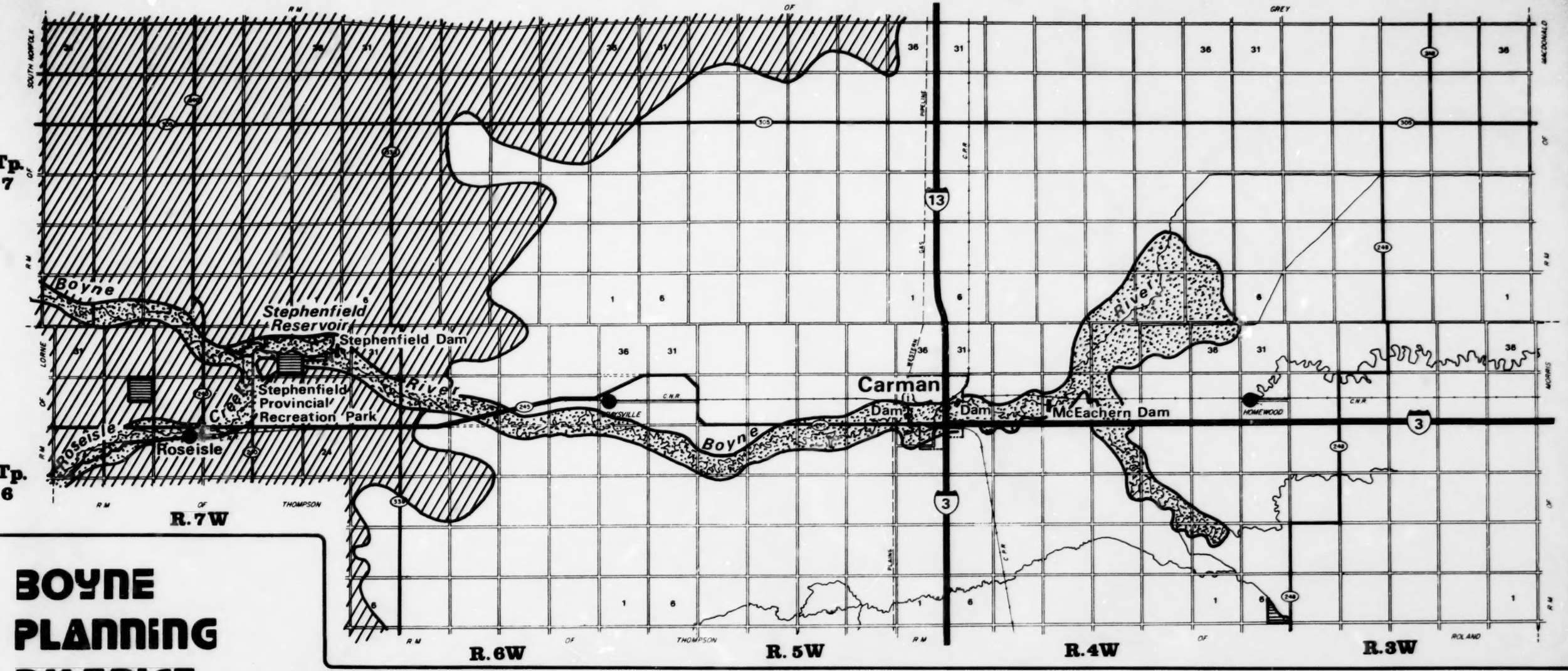
WATER CONTROL LANDS

In addition, some of the lands in Drain Plans and in Water Control Works such as the Stephenfield Reservoir and the McEachern Dam are administered under the Water Resources Administration Act by Water Resources Branch, Department of Natural Resources. Although these lands are owned by the Province, they are not considered Crown lands as administered under the Crown Lands Act.

Table 1. Crown Lands and Crown Land Commitments in the Boyne Planning District

Legal Description	Area (ha.)	Commitment(s)
SE 06-06-03W, south and west of drain	31.4	Cash Rental Lease
NE 06-06-03W, south and west of drain	0.5	Cash Rental Lease
W½ 13-07-03W, north of Water Control Works Plan 1186 CLTO	2.1	
NE 29-06-07W	64.7	Forage Lease
SE 35-06-07W	58.9	Provincial Park 10 ha. in Renewable Hay Permit
N½ SW 36-06-07W	15.2	Provincial Park 10 ha. in Renewable Hay Permit

BOYNE PLANNING DISTRICT



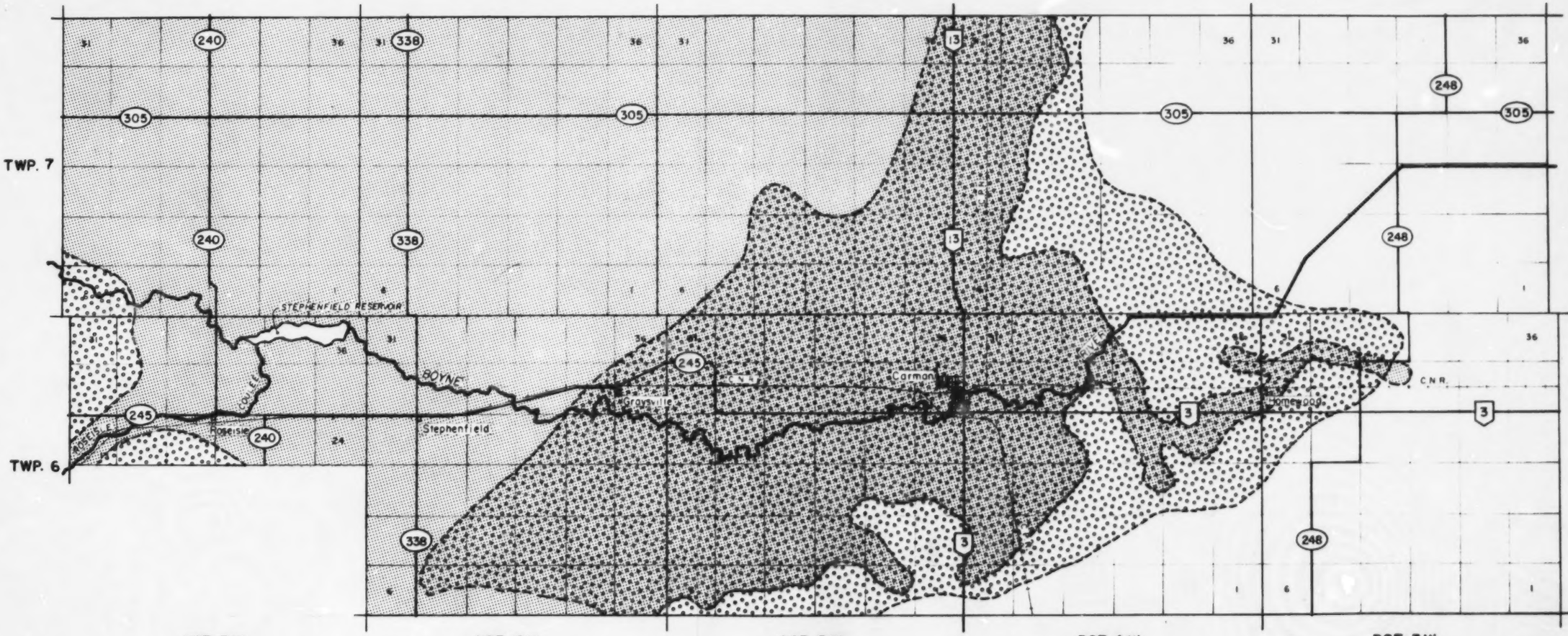
Deer Habitat Area

Waterfowl & Deer Habitat Area

Crown Land

Map 1
Fisheries Habitat, Outdoor Recreation Site, Wildlife Habitat, Crown Lands.
(see text)

MAP 2



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DISTRICT (FIGURE 1.)
THAN 30m (100 FT.)
ARE IN THE 0.4 L/S
WATER QUALITY RANGE
DECREASES WITH DEPT

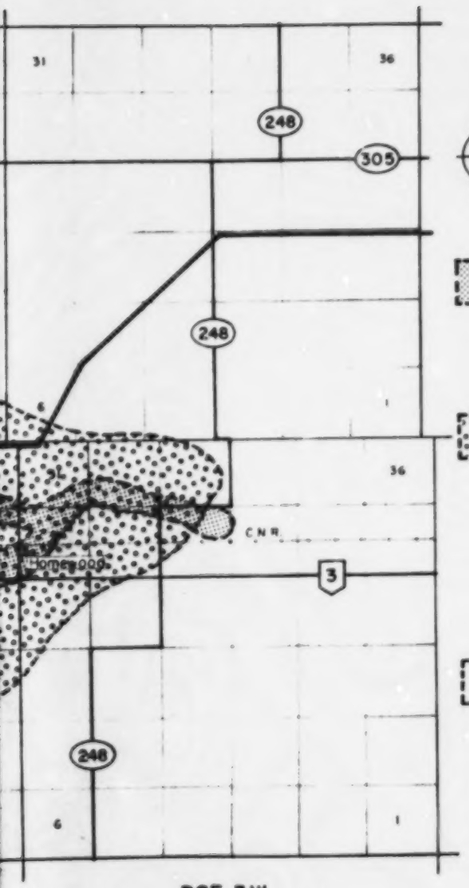
NO POTABLE WATER A

NOTES: 1. MAP INDICAT
2. AQUIFER AR

REFERENCES: 1. J.E. C
2. J.E. C
3. D. SIE
HAZA

DRAWN: C.E.W.	PROVINCE OF MANITOBA DEPARTMENT OF NATURAL RESOURCES WATER RESOURCES BRANCH
CHECKED:	
PREPARED: M. RUTULIS	SUPERVISED: L. Bray — APPROVED:

MAP 2



RGE. 3W.

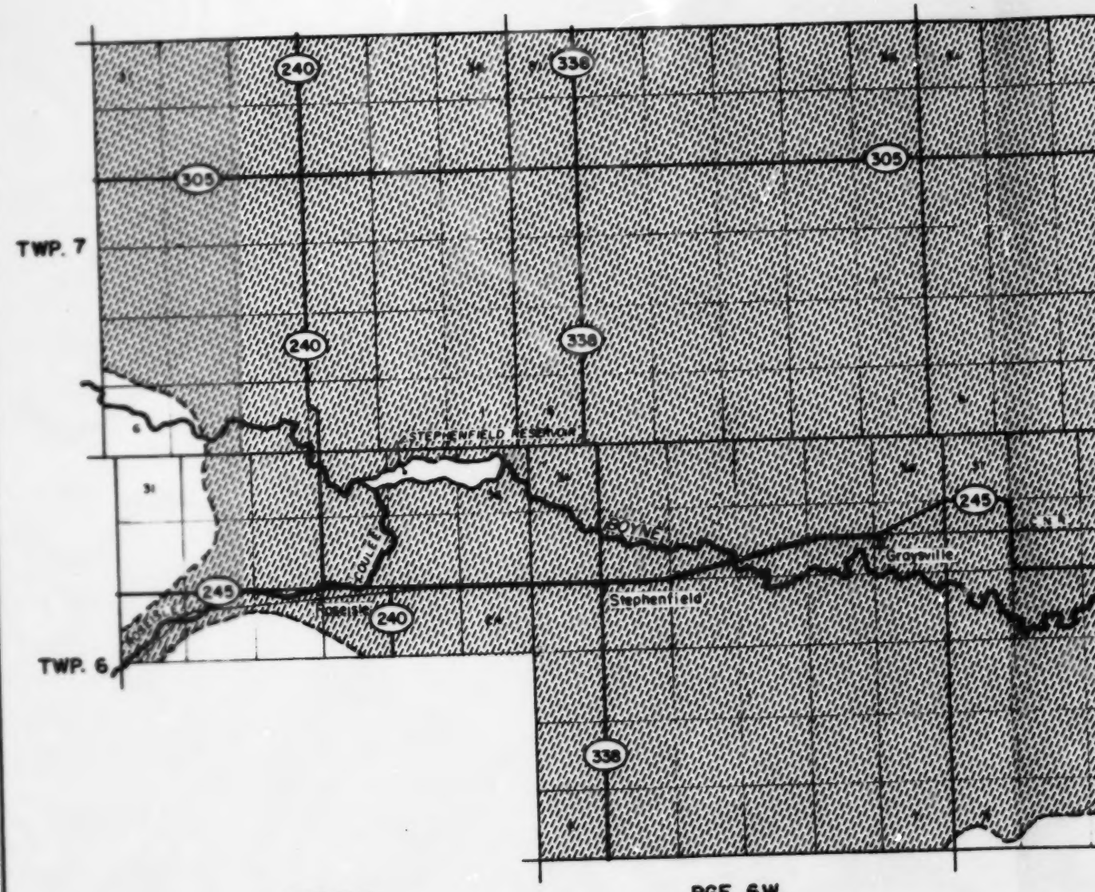
LEGEND

SHALLOW SAND AQUIFERS: FORMED BY SURFACE SAND OR LENSES AND POCKETS OF SAND WITHIN SURFACE SILT AND SILTY CLAY. DEPTH TO THE AQUIFERS LESS THAN 10m (30 FT.) INCLUDES SHALLOW SAND AND GRAVEL AQUIFER IN THE VICINITY OF ROSEISLE. YIELD OF WELLS FROM LESS THAN 0.1 L/S TO 1.0 L/S (LESS THAN 1.0 TO 13 I.G.P.M.). WATER QUALITY: POOR TO EXCELLENT.

SAND AND GRAVEL AQUIFERS: ASSOCIATED WITH GLACIAL TILL. THE SIZE OF THESE AQUIFERS RANGES FROM SMALL POCKETS TO LENSES THAT EXTEND OVER SEVERAL SQUARE KILOMETRES (SECTIONS). THE AQUIFERS OCCUR IN THE TILL BELOW THE THICK CLAY LAYER THAT UNDERLIES ALMOST THE WHOLE DISTRICT (FIGURE 1.) AND THEREFORE GENERALLY ARE MORE THAN 30m (100 FT.) BELOW GROUND LEVEL. WELL YIELDS ARE IN THE 0.4 L/S TO 2.0 L/S RANGE (5 TO 25 I.G.P.M.) WATER QUALITY RANGES FROM GOOD TO VERY POOR, AND DECREASES WITH DEPTH.

NO POTABLE WATER AQUIFERS.

NOTES: 1. MAP INDICATES KNOWN OR POTENTIAL AQUIFERS.
2. AQUIFER AREA BOUNDARIES ARE APPROXIMATE.



RGE. 7 W.

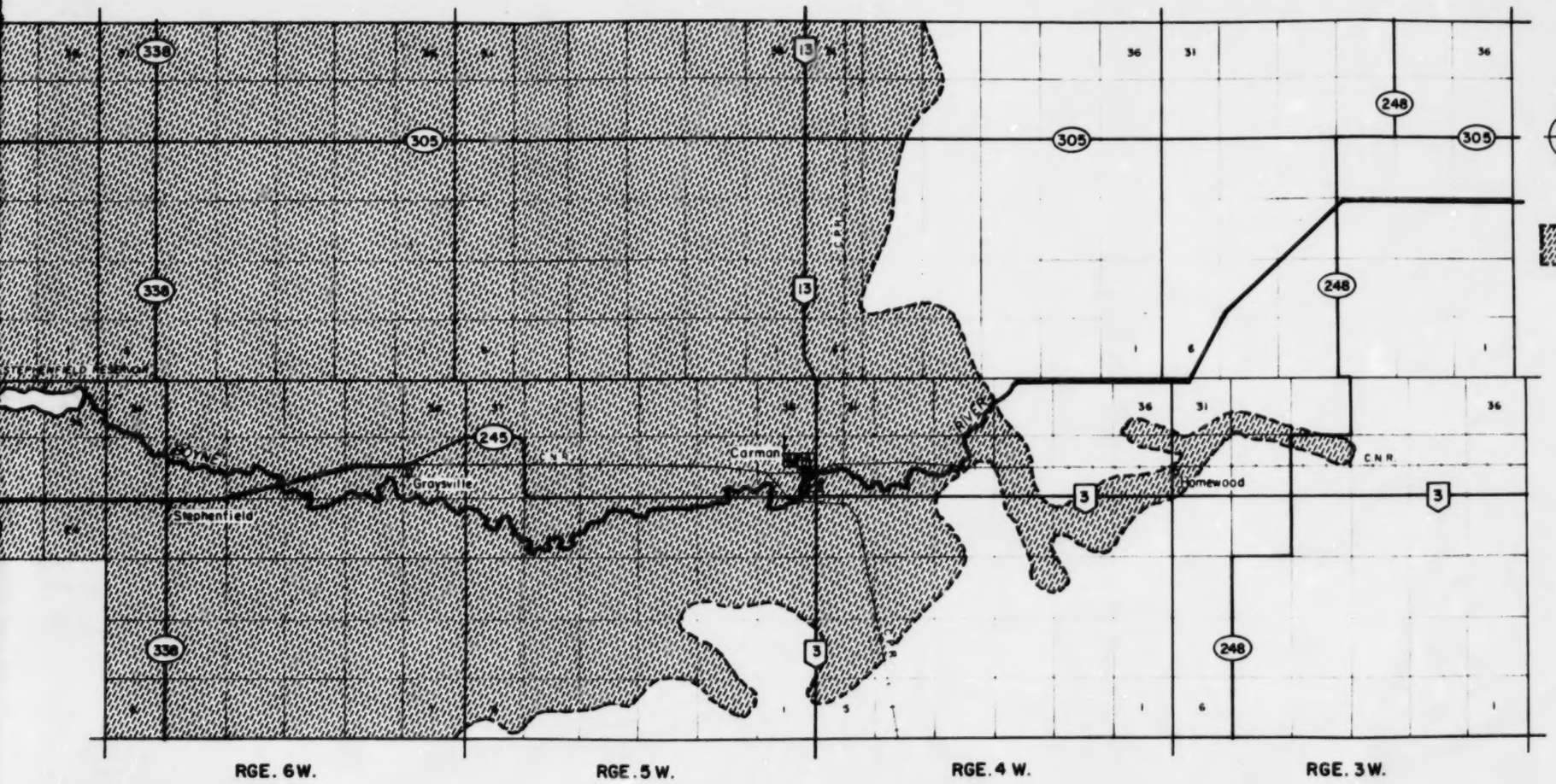
RGE. 6W.

REFERENCES:

1. J.E. CHARRON, 1961, G.S.C. PAPER 60-22
2. J.E. CHARRON, 1964, G.S.C. BULLETIN 98
3. D. SIE, 1978, GROUNDWATER POLLUTION HAZARD MAP, BRANDON AREA.

DRAWN: G.E.W.	PROVINCE OF MANITOBA DEPARTMENT OF NATURAL RESOURCES WATER RESOURCES BRANCH	BOYNE PLANNING DISTRICT
CHECKED:		AQUIFERS
PREPARED: M. RUTULIS	SUPERVISED: L. Gray APPROVED:	SCALE: AS SHOWN DATE: 80 01 12 SHEET: 09 FILE NO: 10-1-7-1224

MAP 3



LEGEND

GROUNDWATER POLLUTION HAZARD AREA : SHALLOW SAND AQUIFERS AT LESS THAN 5 METRES BELOW GROUND LEVEL AND SUBJECT TO POLLUTION BY INFILTRATION FROM THE SURFACE OCCUR IN THE AREA.

NOTES : 1. DEEP AQUIFERS, USUALLY AT MORE THAN 30m BELOW GROUND LEVEL, OCCURING IN THIS AREA ARE NOT LIKELY TO BE AFFECTED BY INFILTRATION OF POLLUTANTS.

2. DETAILED FIELD INVESTIGATIONS MAY SHOW THAT GROUNDWATER POLLUTION HAZARD DOES NOT EXIST AT SOME LOCATIONS IN THE INDICATED AREA.

REFERENCES : 1. J.E. CHARRON, 1961, G.S.C. PAPER 60-22
2. J.E. CHARRON, 1964, G.S.C. BULLETIN 98
3. D.SIE, 1978, GROUNDWATER POLLUTION HAZARD MAP, BRANDON AREA.

SCALE IN MILES
0 1 2 3 4
SCALE IN KILOMETRES
0 1 2 3 4 5 6

DRAWN: C.E.W.	MANITOBA DEPARTMENT OF NATURAL RESOURCES WATER RESOURCES BRANCH	BOYNE PLANNING DISTRICT
PREPARED: M.RUTULIS	L. Sharp	GROUNDWATER POLLUTION HAZARD AREAS
		10-1-7-1224

RGE. 7W. RGE. 6W. RGE. 5W. RGE. 4W. RGE. 3W.

TWP. 7

TWP. 6

R. M. OF DUFFERIN

R. M. OF DUFFERIN

R. M. OF DUFFERIN

STEPHENFIELD DAM AND RESERVOIR

ROBLIN DRAIN

CARMAN DAM AND RESERVOIR

BOYNE PLANNING DISTRICT

LEGEND

LIMITS OF DRAINAGE AREA ----

CITY, TOWN AND MUNICIPAL BOUNDARIES ----

PROVINCIAL TRUNK HIGHWAYS ---

PROVINCIAL ROADS ----------

WATER COURSE

1st ORDER DRAINS ----------

2nd ORDER DRAINS ----------

3rd ORDER DRAINS ----------

4th ORDER DRAINS ----------

5th ORDER DRAINS ----------

6th ORDER DRAINS ----------

7th ORDER DRAINS ----------

SCALE IN MILES

SCALE IN KILOMETRES

Map 4 Surface Drainage Systems

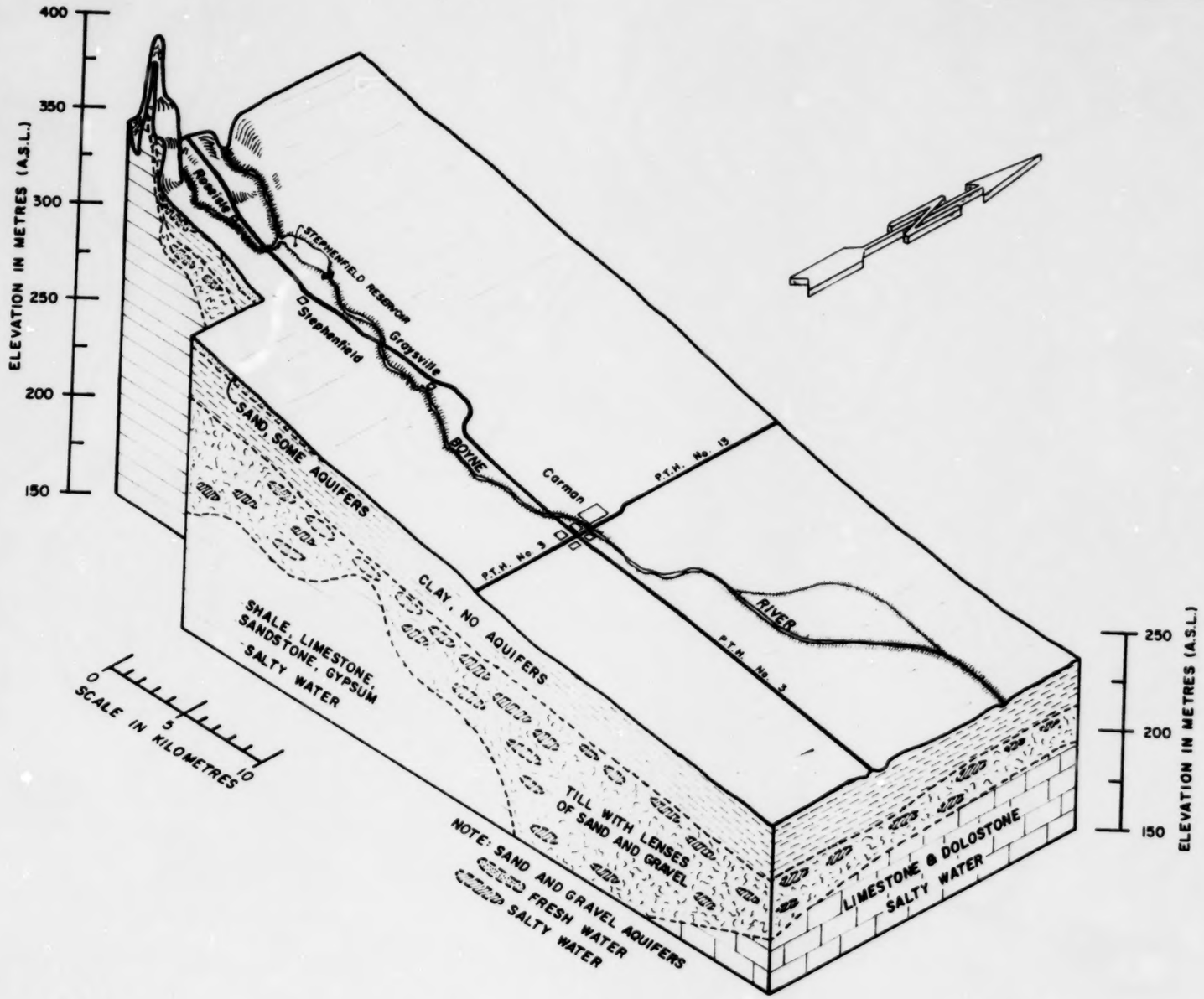


FIGURE 1

DRAWN C.E.W.	PROVINCE OF MANITOBA DEPARTMENT OF NATURAL RESOURCES WATER RESOURCES BRANCH	BOYNE PLANNING DISTRICT
CHECKED		TOPOGRAPHIC AND SUBSURFACE FEATURES
PREPARED M. RUTULIS	SUBMITTED L. Bray — APPROVED	SCALE AS SHOWN · DATE 83 01 12 · SHEET OF · FILE NO. 10-1-7-1224

POOR

QUALITY

ORIGINAL